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Toru Nakakubo

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EXAMINER

RADEMAKER, CLAIRE L

ART UNIT

PAPER NUMBER

1795

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/510,215	Applicant(s) NAKAKUBO ET AL.	
	Examiner CLAIRE L. RADEMAKER	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>9/23/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This office action is in response to the amendment filed on September 23, 2009. Claims 1-13 are pending and are rejected for reasons of record. Claims 14-42 are cancelled. Claims 1, 5, & 12-13 have been amended.

2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action issued on June 23, 2009.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation “wherein the charger, not having an electrolyte membrane, generates hydrogen by electrolyzing water in the fuel cell system through use of an ion conductor included in a cell of the fuel cell system” (amended claims 1 & 12-13) is not supported by the original disclosure. The instant Specification states that “the oxidizer electrode functioning as the anode for electrolysis

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of water, reaction of formula (1) described below is caused by water supplied to an ion conductor (e.g., a polymer electrolysis film) and a positive current supplied from the power supply port, and oxygen and hydrogen ions are generated" (instant Specification, page 30, lines 8-14). One of ordinary skill in the art would understand that a "polymer electrolysis film" is a polymeric membrane (i.e. a electrolyte membrane), and therefore it is the Examiner's position that the instant Specification does not provide support for the limitation "wherein the charger, not having an electrolyte membrane, generates hydrogen by electrolyzing water in the fuel cell system through use of an ion conductor included in a cell of the fuel cell system" (amended claims 1 & 12-13).

Furthermore, the instant Specification fails to provide support for the concept of the charger generating hydrogen by electrolyzing water in the fuel cell system via an ion conductor in the fuel cell system (amended claims 1 & 12-13).

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Furthermore, claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 & 12-13 contain the limitation "wherein the charger, not having an electrolyte membrane, generates hydrogen by electrolyzing water in the fuel cell system through use of an ion conductor included in a cell of the fuel cell system" which is indefinite because it is unclear exactly how the charger can generate hydrogen by

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electrolyzing water in the fuel cell system via an ion conductor in the fuel cell system because the instant Specification clearly states that the water which is electrolyzed to make hydrogen / fuel is supplied from outside the system and from water that is discharged from the fuel cell system (instant Specification page 6, lines 11-14 & page 11, lines 13-16).

For Examination purposes, this limitation is interpreted as meaning that the charger does not contain an electrolyte membrane, but rather contains a different type of separator, and that the charger / electrolyzer generates hydrogen by electrolyzing water provided by a fuel cell system and/or an outside source, where the hydrogen is then stored in a fuel tank of a fuel cell system.

Claims Analysis

7. The Examiner notes that the instant claims are drawn to an apparatus and that it has been held that while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function (MPEP 2144) and that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim (MPEP 2144). Therefore, the process and functional limitations of the instant claims were not given patentable weight, and the apparatus of the instant claims was Examined in terms of structure.

Claim Rejections - 35 USC § 103

8. Claims 1 & 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Streckert et al. (US 6,447,945) in view of Schmitman (US 2002/0090868).

With regard to claim 1, Streckert et al. teaches a charger / electrolyzer (71, col. 8, lines 34-41; Figures 1 & 15) for generating hydrogen by electrolyzing water provided by a fuel cell system (33, col. 3, line 55; Figures 1-2 & 8-9) and/or an outside source (col. 8, lines 49-53 & col. 3, lines 3-9 & 16-30), where the hydrogen is then stored in a fuel tank of a fuel cell system (col. 8, lines 42-59), where said charger / electrolyzer is detachable from the fuel cell system (col. 8, lines 20-41; Figures 1 & 15), and where the charger / electrolyzer comprises:

A water supply means that supplies water to the fuel cell system (col. 8, lines 49-56); and

A power supply means (col. 3, line 55 - col. 4, line 5; Figure 15) that supplies electric power to a power intake electrode (col. 3, line 55 - col. 4, line 5; Figures 1 & 15) of the fuel cell system that takes in electric power for electrolyzing the water into hydrogen (col. 7, line 47 - col. 8, line 2 & lines 42-62),

But fails to teach that a charger / electrolyzer not having an electrolyte membrane can be used.

Schmitman teaches that a charger / electrolyzer having a polymer membrane / electrolyte membrane and other types of electrolyzers that do not have a polymer membrane / electrolyte membrane (such as a steam electrolyzer that has a solid oxide

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membrane) are all suitable electrolyzers to convert water into hydrogen and oxygen (paragraph [0026]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concept that a charger / electrolyzer having a polymer membrane / electrolyte membrane and other types of electrolyzers that do not have a polymer membrane / electrolyte membrane (such as a steam electrolyzer that has a solid oxide membrane) are all suitable chargers / electrolyzers to convert water into hydrogen and oxygen (paragraph [0026]) of Schmitman to the charger / electrolyzer of Streckert et al. because Schmitman teaches that these types of chargers / electrolyzers are well known equivalents and that they are all suitable chargers / electrolyzers to convert water into hydrogen and oxygen (paragraph [0026]) so one would have a reasonable expectation of success in doing so.

With regard to claim 4, modified Streckert et al. fails to teach that the water supply means comprises means that supplies water in a state in which the fuel cell system is immersed in the water (i.e. that the fuel cell is immersed in the water supply means).

While modified Streckert et al. fails to teach that the water supply means comprises means that supplies water in a state in which the fuel cell system is immersed in the water (i.e. that the fuel cell is immersed in the water supply means), one of ordinary skill in the art at the time of the invention would understand it would be advantageous to immerse the fuel cell in the water supply means in order to create a more compact system.

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Furthermore, it has been held that if a claimed invention reads on the prior art except with regard to the position of a component of a device, the invention is unpatentable if switching the position of the component would have not modified the operation of the device (MPEP 2144.04). In this case, immersing the fuel cell in the water supply means would not modify the operation of the device, which is to electrolyze water to make hydrogen that is then used as fuel in a fuel cell.

Furthermore, one of ordinary skill in the art would understand that immersing the fuel cell in the water supply means (i.e. in various positions / orientations) is an obvious matter of design choice (MPEP 2144.04) and that the charger / electrolyzer - fuel cell system of modified Streckert et al. would function properly (the same) when the fuel cell is immersed in the water supply tank because shifting the position/orientation of the fuel cell relative to the charger / electrolyzer would not have modified the operation of the system. It has been held that mere rearrangement of parts has no patentable significance if the rearrangement does not modify the operation of the device / system (MPEP 2144.04).

9. Claims 2-3 & 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Streckert et al. (US 6,447,945) and Schmitman (US 2002/0090868), as applied to claim 1 above, and further in view of Zhu et al. (US 2003/0198064).

The disclosure of Streckert et al. and Schmitman as discussed above is fully incorporated herein.

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With regard to claims 2-3 & 8, Streckert et al. teaches that a power supply port of the power supply means is connected to the power intake electrode of the fuel cell system in a state in which the power supply port (col. 3, line 55 - col. 4, line 5; Figures 1 & 15), where the power supply means includes a plug for obtaining AC power supply from an outside (col. 3, line 55 - col. 4, line 5; Figures 1 & 15) and a power supply port that supplies power to the power intake electrode of the fuel cell system (col. 3, line 55 - col. 4, line 5; Figures 1 & 15), but fails to specifically state that the power supply port and the power intake electrode are insulated from the outside, or that the power supply means includes an AC/DC converter or a transformer.

While Streckert et al. fails to specifically state that the power supply port and the power intake electrode are insulated from the outside, one of ordinary skill in the art would understand it would be advantageous to insulate the power supply port and the power intake electrode from the outside in order to prevent them from the outside elements and minimize corrosion and damage.

Modified Streckert et al. fails to teach that the power supply means includes an AC/DC converter or a transformer.

Zhu et al. teaches that a power supply means for a fuel cell ([0041]) can comprise a transformer (paragraph [0014]), a rectifier circuit (which includes an AC/DC converter) (paragraph [0014]), and a power control means (paragraphs [0016] & [0009]-[0010]) in order to provide a boost starter converter for a fuel cell system and to limit voltage spikes (abstract & paragraphs [0009]-[0010]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concept of a power supply means for a fuel cell having a transformer, a rectifier circuit (which includes an AC/DC converter), and a power control means of Zhu et al. to the fuel cell system of modified Streckert et al. in order to provide a boost starter converter for the fuel cell system and to limit voltage spikes (abstract & paragraphs [0009]-[0010]).

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Streckert et al. (US 6,447,945) and Schmitman (US 2002/0090868), as applied to claim 1 above, and further in view of McElroy (US 4,795,683).

The disclosure of Streckert et al. and Schmitman as discussed above is fully incorporated herein.

With regard to claim 5, modified Streckert et al. fails to teach that the water supply means comprises means that changes water into a mist state and supplies the mist to the fuel cell system.

McElroy teaches that a water supply means for supplying water to a fuel cell (col. 2, line 8) can comprise means that changes water into a mist state (an aspirator) and supplies the water to the fuel cell system (col. 2, lines 8-21) in order to allow cooling of the fuel cell without need for a separate cooling chamber (col. 2, lines 18-22).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the means that changes water into a mist state and supplies the mist to the fuel cell system of McElroy to the fuel cell system of modified Streckert et al. in order

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to allow cooling of the fuel cell without need for a separate cooling chamber (col. 2, lines 18-22).

11. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Streckert et al. (US 6,447,945) and Schmitman (US 2002/0090868), as applied to claim 1 above, and further in view of Kagitani (US 2002/0022162).

The disclosure of Streckert et al. and Schmitman as discussed above is fully incorporated herein.

With regard to claims 6-7, modified Streckert et al. fails to teach a cooler that cools the fuel tank of the fuel cell system, or a heater that heats a cell section of the fuel cell system.

Kagitani teaches that a fuel cell system (10, paragraph [0055]; Figure 2) can comprise a fuel tank / hydrogen storage tank (12, paragraph [0055]; Figure 2), a cooler / cooling loop that cools the fuel tank of the fuel cell system (paragraph [055]; Figure 2), and a heater / heat pump & heat exchanger (5b & 5a, paragraph [0055]; Figure 2) which heat a cell section of the fuel cell system (paragraph [0055]; Figure 2) in order to increase storage rate of fuel / hydrogen in the fuel tank and to maintain efficiency of the fuel cell system (paragraph [0055]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concept of having a cooler / cooling loop cool the fuel tank and the concept of a heater / heat pump & heat exchanger heating a cell section of the fuel cell system of Kagitani to the fuel cell system of modified Streckert et al. in order to increase

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storage rate of fuel / hydrogen in the fuel tank and to maintain efficiency of the fuel cell system (paragraph [0055]).

12. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Streckert et al. (US 6,447,945) and Schmitman (US 2002/0090868), as applied to claim 1 above, and further in view of Togasawa et al. (US 2002/0014277).

The disclosure of Streckert et al. and Schmitman as discussed above is fully incorporated herein.

With regard to claims 9-10, modified Streckert et al. fails to teach a pressure sensor provided in the fuel tank of the fuel cell system, a valve control means, or a fuel supply valve provided in a fuel flow path that introduces hydrogen to the fuel cell.

Togasawa et al. teaches the concept of fuel cell (6, paragraph [0052]) comprising a fuel / hydrogen tank (3, paragraphs [0029] & [053]) comprising a pressure sensor (paragraphs [0029] & [0053]) that detects the pressure within the fuel / hydrogen tank (paragraphs [0022] & [0029]), a fuel supply valve (5, paragraphs [0029] & [0052]), and a controller (paragraphs [0029] & [0053]) that controls said valve to vary the hydrogen-filling rate depending upon the pressure detected by said sensor (paragraphs [0029]-[0030]) in order to allow the fuel / hydrogen tank to be filled rapidly while suppressing exothermic phenomenon during the course of filling (paragraph [0001]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concept of a fuel cell comprising a fuel tank with a pressure sensor that detects the pressure within the fuel tank, a valve, and a controller that controls said

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valve to vary the hydrogen-filling rate depending upon the pressure detected by said sensor of Togasawa et al. to the fuel cell system of modified Streckert et al. in order to allow the fuel / hydrogen tank to be filled rapidly while suppressing exothermic phenomenon during the course of filling (paragraph [0001]).

13. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Streckert et al. (US 6,447,945) and Schmitman (US 2002/0090868), as applied to claim 1 above, and further in view of Shimada (JP 2001-266915).

The disclosure of Streckert et al. and Schmitman as discussed above is fully incorporated herein.

With regard to claim 11, modified Streckert et al. fails to teach a residual capacity detecting means.

Shimada teaches that a fuel tank / hydrogen tank in a fuel cell system can comprise a residual capacity detecting means / residual amount detecting means (52, abstract & paragraph [0006]) which detects if the amount of remaining fuel / hydrogen in the fuel tank / hydrogen tank has reached a level where the regeneration of fuel / hydrogen is necessary (abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the residual capacity detecting means / residual amount detecting means of Shimada to the fuel tank of modified Streckert et al. in order to allow determination of whether the amount of remaining fuel / hydrogen in the fuel tank /

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hydrogen tank has reached a level where the regeneration of fuel / hydrogen is necessary (abstract).

14. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Streckert et al. (US 6,447,945) in view of and Schmitman (US 2002/0090868), Zhu et al. (US 2003/0198064), and Togasawa et al. (US 2002/0014277).

With regard to claims 12-13, Streckert et al. teaches a charger / electrolyzer (71, col. 8, lines 34-41; Figures 1 & 15) for generating hydrogen by electrolyzing water provided by a fuel cell system (33, col. 3, line 55; Figures 1-2 & 8-9) and/or an outside source (col. 8, lines 49-53 & col. 3, lines 3-9 & 16-30), where the hydrogen is then stored in a fuel tank of a fuel cell system (col. 8, lines 42-59), where said charger / electrolyzer is detachable from the fuel cell system (col. 8, lines 20-41; Figures 1 & 15), and where said charger / electrolyzer comprises a power supply means (col. 3, line 55 - col. 4, line 5; Figure 15) that supplies electric power to a power intake electrode (col. 3, line 55 - col. 4, line 5; Figures 1 & 15) of the fuel cell system that takes in electric power for electrolyzing the water into hydrogen (col. 7, line 47 – col. 8, line 2 & lines 42-62), but fails to teach a charger / electrolyzer not having an electrolyte membrane can be used, a power control means, a pressure sensor provided in the fuel tank of the fuel cell system, a valve control means, or a fuel supply valve.

Schmitman teaches that a charger / electrolyzer having a polymer membrane / electrolyte membrane and other types of electrolyzers that do not have a polymer

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membrane / electrolyte membrane (such as a steam electrolyzer that has a solid oxide membrane) are all suitable electrolyzers to convert water into hydrogen and oxygen (paragraph [0026]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concept that a charger / electrolyzer having a polymer membrane / electrolyte membrane and other types of electrolyzers that do not have a polymer membrane / electrolyte membrane (such as a steam electrolyzer that has a solid oxide membrane) are all suitable chargers / electrolyzers to convert water into hydrogen and oxygen (paragraph [0026]) of Schmitman to the charger / electrolyzer of Streckert et al. because Schmitman teaches that these types of chargers / electrolyzers are well known equivalents and that they are all suitable chargers / electrolyzers to convert water into hydrogen and oxygen (paragraph [0026]) so one would have a reasonable expectation of success in doing so.

Modified Streckert et al. fails to teach a power control means, a pressure sensor provided in the fuel tank of the fuel cell system, a valve control means, or a fuel supply valve.

Zhu et al. teaches that a power supply means for a fuel cell ([0041]) can comprise a transformer (paragraph [0014]), a rectifier circuit (which includes an AC/DC converter) (paragraph [0014]), and a power control means (paragraphs [0016] & [0009]-[0010]) in order to provide a boost starter converter for a fuel cell system and to limit voltage spikes (abstract & paragraphs [0009]-[0010]).

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It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concept of a power supply means for a fuel cell having a transformer, a rectifier circuit (which includes an AC/DC converter), and a power control means of Zhu et al. to the fuel cell system of modified Streckert et al. in order to provide a boost starter converter for the fuel cell system and to limit voltage spikes (abstract & paragraphs [0009]-[0010]).

Modified Streckert et al. fails to teach a pressure sensor provided in the fuel tank of the fuel cell system.

Togasawa et al. teaches the concept of fuel cell (6, paragraph [0052]) comprising a fuel / hydrogen tank (3, paragraphs [0029] & [0053]) comprising a pressure sensor (paragraphs [0029] & [0053]) that detects the pressure within the fuel / hydrogen tank (paragraphs [0022] & [0029]), a fuel supply valve (5, paragraphs [0029] & [0052]), and a controller (paragraphs [0029] & [0053]) that controls said valve to vary the hydrogen-filling rate depending upon the pressure detected by said sensor (paragraphs [0029]-[0030]) in order to allow the fuel / hydrogen tank to be filled rapidly while suppressing exothermic phenomenon during the course of filling (paragraph [0001]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concept of a fuel cell comprising a fuel tank with a pressure sensor that detects the pressure within the fuel tank, a valve, and a controller that controls said valve to vary the hydrogen-filling rate depending upon the pressure detected by said sensor of Togasawa et al. to the fuel cell system of modified Streckert et al. in order to

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allow the fuel / hydrogen tank to be filled rapidly while suppressing exothermic phenomenon during the course of filling (paragraph [0001]).

Response to Arguments

Information Disclosure Statement

15. Applicant's arguments with regard to the objections to the Information Disclosure Statement (IDS) regarding a relevancy statement for JP 2001-351667, filed on September 23, 2009, have been fully considered and the Examiner's objections are withdrawn due to the Applicant's amendments and arguments.

Furthermore, the IDS submitted September 23, 2009 has been "X"ed out because it does not cite any new references which were not considered before. The Examiner notes that while the May 27, 2005 IDS was objected to because of a missing relevancy statement for JP 2001-351667, the Examiner did place the reference in the application file and did consider the reference.

Claim Rejections - 35 USC § 112

16. Applicant's arguments with regard to the rejections of claims 1-13, filed on September 23, 2009, have been fully considered and the Examiner's rejections are withdrawn due to the Applicant's amendments and arguments.

However, claims 1-13 are now rejected, due to claim amendments, under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement and under 35 U.S.C. 112, second paragraph as being indefinite for failing to particularly

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point out and distinctly claim the subject matter which applicant regards as the invention. See paragraphs 2-5 above for details.

Claim Rejections - 35 USC § 102

17. Applicant's arguments, on pages 10-11 of the Applicant's Response, with respect to claims 1-13, filed on September 23, 2009, have been considered but are moot in the view of the new grounds of rejection. The new grounds of rejection are necessitated by the Applicant's amendment and all arguments are directed toward the added feature of the charger being detachable from the fuel cell system (amended claims 1 & 12-13) and the added feature of the charger not having an electrolyte membrane (amended claims 1 & 12-13).

On page 11 of the Applicant's Response, Applicants argue that Streckert discloses that the electrolyzer 71 "is preferably one that employs a separation technology in which an ion exchange membrane is employed" (Applicant's Response, page 11) and that "the fuel cell power-generating unit 33... is preferably located in a compartment provided in a lid section between a display screen and a cover or wall surface of a lid of the PC" (Applicant's Response, page 11).

In response to the Applicant's arguments that Streckert discloses that the electrolyzer 71 "is preferably one that employs a separation technology in which an ion exchange membrane is employed" (Applicant's Response, page 11) and that "the fuel

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cell power-generating unit 33... is preferably located in a compartment provided in a lid section between a display screen and a cover or wall surface of a lid of the PC”

(Applicant’s Response, page 11), the Examiner notes that:

1) The claim limitation that the charger / electrolyzer does not have an electrolyte membrane is newly added and therefore is subject to a new rejection due to amendment. This newly added concept is rejected under Schmitman (US 2002/0090868);

2) While Streckert does disclose that the electrolyzer 71 is “is preferably one that employs a separation technology in which an ion exchange membrane is employed” (Applicant’s Response, page 11), it has been held that “disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments” (MPEP 2123) and that “a known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use” (MPEP 2123). Furthermore, it has been held that “a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments” (MPEP 2123). Therefore, the Applicants argument that it would not be obvious for Streckert to use an electrolyzer that does not have an electrolyte membrane is not persuasive.

3) Applicant’s argument that Streckert discloses that “the fuel cell power-generating unit 33... is preferably located in a compartment provided in a lid section between a display screen and a cover or wall surface of a lid of the PC” (Applicant’s

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Response, page 11) is not persuasive because it has been held that "disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments" (MPEP 2123) and that "a known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use" (MPEP 2123). Furthermore, it has been held that "a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art, including nonpreferred embodiments" (MPEP 2123). Furthermore, it has been held that if a claimed invention reads on the prior art except with regard to the position of a component of a device, the invention is unpatentable if switching the position of the component would have not modified the operation of the device (MPEP 2144.04). In this case, immersing the fuel cell in the water supply means would not modify the operation of the device, which is to electrolyze water to make hydrogen that is then used as fuel in a fuel cell.

Furthermore, one of ordinary skill in the art would understand that immersing the fuel cell in the water supply means (i.e. in various positions / orientations) is an obvious matter of design choice (MPEP 2144.04) and that the charger / electrolyzer - fuel cell system of modified Streckert et al. would function properly (the same) when the fuel cell is immersed in the water supply tank because shifting the position/orientation of the fuel cell relative to the charger / electrolyzer would not have modified the operation of the system. It has been held that mere rearrangement of parts has no patentable significance if the rearrangement does not modify the operation of the device / system (MPEP 2144.04). Therefore, the Applicants argument that it would not be obvious to

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have the fuel cell of Streckert et al. immersed in the water supply means is not persuasive.

Conclusion

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CLAIRE L. RADEMAKER whose telephone number is (571)272-9809. The examiner can normally be reached on Monday - Thursday, 8:00AM - 4:00PM, EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. L. R./
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795